"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKOVSKIY, G.P.

USSR/ Physics - Mass - spectroscopes

Card 1/2 : Pub. 22 - 9/52

Authors : Alekseyevskiy, N. E.; Prudkovskiy, G. P.; Kosourov, G. I. and Filimonov, S. I.

Title : Use of a non-uniform magnetic field for the purpose of increasing the ressolving power of a mass-spectrometer

Periodical : Dok. AN SSSR 100/2, 229-232, Jan 11, 1955

Abstract : Experiments conducted with mass-spectrometers are described. The purpose of the experiments was to find out the effect of a non-uniform magnetic field used with the mass spectrometers on the ressolving power of the latter. The results of the experiments show that a non-uniform magnetic field increases the ressolving power of a mass-spectrometer by a factor of $\frac{1}{1-n}$,

Institution : Acad. of Scs of the USSR, S. I. Vavilov, Institute of Physical Problems.

Presented by : Academician A. P. Alexandroff, September 30, 1954

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

Periodical : Dok. AN SSSR 100/2, 229-232, Jan 11, 1954

Card 2/2 Pub. 22 - 9/52

Abstract : Where η is the coefficient of non-uniformity of the field. It can be calculated by the following formula:

$$\eta = -\frac{\partial H}{\partial r} \cdot \frac{r}{H}\Big|_{r=r_0} \quad \text{or} \quad \eta = \frac{r_0}{r_0 + a} = 2\frac{r_0}{l_0} \operatorname{tg} \frac{\theta}{2}, \quad \theta$$

is the angle between generatices of the magnetic conical tips used for the formation of the non-uniform field. lo is the width of the slit on the radious ro. Nine references: 1 USSR; 2 German; 6 USA (1941-1952). Diagrams; graphs.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKOVSKIY, G.P.

Automatic fixation of the maximum of the ion current of a mass spectrometer. N. B. Alekseevskii, G. A. Koretskii, and G. P. Prudkovskii. *Pribory i Tekh. Eksperimenta* 1956, No. 2, 86-7.

Werner Jacobson

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

S/120/62/000/001/001/061
E032/E514

AUTHORS: Levin, G.E. and Prudkovskiy, G.P.

TITLE: Trajectographs - automatic devices which compute and plot charged particle trajectories (a review)

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 7-19

TEXT: The authors review published designs of "trajectographs", i.e. automatic computing machines which can solve the equations of motion of charged particles in an electromagnetic field. The solution is obtained either from the variation in the radius of curvature, the angle turned through by the tangent to the trajectory, or by integrating the components of the forces acting on the particle in a given plane. The principles of operation of these devices are described and schematic drawings of typical devices are reproduced. There are 8 figures.

SUBMITTED: November 27, 1961

Card 1/1

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKOVSKIY, G.P.

Trajectory recorder. Elektron. bolsh. moshch. no.3: 70-128 '64. (MIRA 17:9)

Trochoidal electron beam with decreased orbital motion. Ibid.:129-147

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 45991-66 EWT(d)/EWP(1) IJP(c) GG/BB

ACC NR: AP6030141 SOURCE CODE: UR/0120/66/000/004/0109/0115

31
28
B

AUTHOR: Prudkovskiy, G. P.; Tsvetkov, V. I.

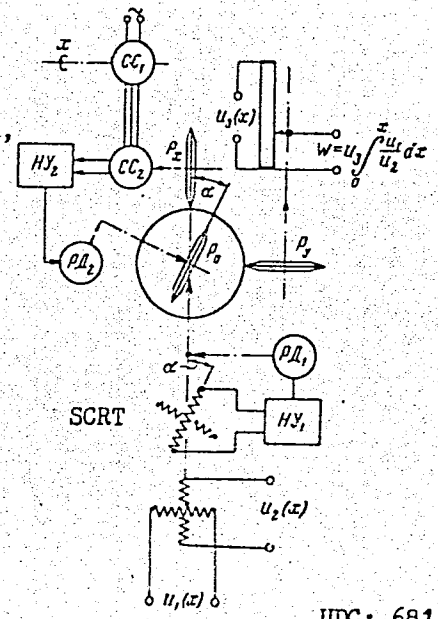
ORG: Institute of Physical Problems AN SSSR, Moscow (Institut fizicheskikh problem AN SSSR)

TITLE: Sphere-type integrator 16

SOURCE: Pribory i tekhnika eksperimenta, no. 4, 1966, 109-115

TOPIC TAGS: integration, mechanical integrator

ABSTRACT: A mechanical integrator consisting of three rollers friction-coupled with a sphere is described. The sphere rotation with respect to two perpendicular axes is measured by driven rollers P_x and P_y (see figure). The function can be introduced by a mechanical tangent device which operates driving roller P_0; however, this device will limit the initial function. A better function-introducing device includes a sine-



Card 1/2

UDC: 681.141

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 45991-66

ACC NR: AP6030141

3.

cosine rotary transformer (synchro) SCRT (see figure). The sphere-type integrator was built in two versions: (1) With a 38-mm 230-g steel sphere and 38-mm steel rollers; the sphere was pressed against the rollers by a special pneumatic or spring device; the mean-square error was ± 0.1% and ± 0.17% (maximum error, 0.3%, and -0.4%) with pneumatic and spring pressure devices, respectively; (2) With a 96-mm 1170-g glass sphere; no pressure device was used; mean-square error, 0.07%; maximum error, 0.08%. The ranges of the argument, function, and integral are unlimited. The above integrator is intended for operation as a part of a trajectory tracer which solves the equations of the motion of particles in electric and magnetic fields. "The authors wish to thank G. P. Nikitin, S. A. Smirnov, and N. M. Gusev for their participation in building and debugging the above instruments." Orig. art. has: 7 figures and 15 formulas. [03]

SUB CODE: 12, 13 / SUBM DATE: 08Jul65 / ORIG REF: 006 / OTH REF: 000 / ATD PRESS: 5087

pb

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 13349-66 EWT(1)/EWA(m)-2 IJP(c) AT

ACC NR: AT5027164 SOURCE CODE: UR/3055/65/000/004/0212/0242

65
59
B+1

AUTHOR: Prudkovskiy, G. P.

ORG: none

TITLE: Travel of electrons in a two-row nigotron

SOURCE: AN SSSR. Fizicheskaya laboratoriya. Elektronika bol'shikh moshchnostey, no. 4, 1965, 212-242

TOPIC TAGS: nigotron, magnetron, electron oscillation, electron beam, RF field, electrostatic field, constant magnetic field

ABSTRACT: Trajectories of the electrons traveling in a two-row "nigotron" (described by P. L. Kapitsa et al. in the "Elektronika bol'shikh moshchnostey," no. 3, Nauka publ., 1964) were explored by an electrolytic simulator ("trajectograph"). As both the anode and cathode of the nigotron-type magnetron oscillator have a periodic structure, the electron beam at the emitter is strongly affected by the r-f field and by the nonuniformity of the constant magnetic field; of particular importance is the effect of electrostatic-field nonuniformity. The obtained paths show the resonance shapes of orbits when the trochoid period coincides with the anode- and cathode-block period. By suitable proportioning of the trochoid period, blocks period, and slot width, the disturbance of electron paths can be minimized.

Card 1/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 13349-66

ACC NR: AT5027164

21,44,55 6

In order to ensure the arrival of a not-very-distorted electron beam to the anode, a negative (with respect to emitter) bias should be applied to the cathode. This bias keeps the beam away from the cathode. The periodic disturbance of the constant field affects not only the orbital motion but also the electron drift velocity, i.e., the velocity of orbit centers. Near the cathode, where the electron beam is strongly distorted, the drift speed drops abruptly and the electron phase bunching essentially changes; with a sufficient negative bias, the electrons having an unfavorable phase acquire a favorable (decelerating) phase of the r-f field before reaching the cathode. Thus, a phase conversion of electron beams takes place between the supply plane and the cathode. Apparently, this conversion is magnified by the space charge neglected in the present article. "The author wishes to thank P. L. Kapitsa for a statement of the problem and attention to the work, L. A. Vaynshteyn for useful discussions and comments, and also trajectograph operator B. P. Belov." Orig. art. has: 22 figures and 2 formulas.

SUB CODE: 20,09/ SUBM DATE: 22Jul64 / ORIG REF: 005

Card 2/2 FW

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKOVSKIY, G.P.

Motion of electrons in a two-row magnetron. Elektron. bol'sh. moshch. no.4:212-242 '65. (MIRA 18:10)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 11440-65 BSD/SSD/ASD(a)-5/AFWL/AS(mp)-2/AFETR/ESD(dp)/ESD(gs)/ESD(t)

ACCESSION NR: AT4047275 S/2055/64/000/003/0070/0128

AUTHOR: Prudkovskiy, G.P.

TITLE: Trajectograph

SOURCE: AN SSSR. Fizicheskaya laboratoriya. Elektronika bol'shikh moshchnostey, no. 3, 1964, 70-128

TOPIC TAGS: trajectograph, electron optics, particle trajectory, electric field modeling

ABSTRACT: The paper gives a detailed discussion of the design considerations and the principles of operation of a trajectograph, developed during the years 1956-63 at the Institut fizicheskikh problem AN SSR (Institute of Physical Problems, AN SSSR) to help solve a very broad class of problems in static and dynamic electron optics. The trajectograph is an electromechanical modeling device which integrates the equations of motion of a charged particle and plots their trajectories. It can be used for solving such problems in static and high-frequency (electric and magnetic) fields and when a particle moves with a relativistic velocity. Such trajectographs were initially (after 1948) developed at the Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering and Physics Institute); and since 1956 they have also been developed at the Institute of Physical

Card 1/4

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

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ACCESSION NR: AT4047275

Problems. The trajectograph uses an electrolytic tank for modeling fields with an accuracy up to 0.1%. It employs a five-probe sonde. Potentiometers and rotary transformers, controlled by servo systems, are used for performing algebraic and trigonometric operations with an accuracy of 0.1%. Electronic circuits of two types are employed: linear negative-feedback amplifiers and standard error-signal amplifiers used in the servo systems. The errors of the instrument are of the same magnitude as the variations of the actual trajectories, which are due to the spread of the initial conditions and parameters of the electron-optical system. The accuracy of the trajectograph, estimated in weakly focusing (or weakly defocusing) fields, is 0.2-0.5% for static fields and 0.5-1.0% for high-frequency fields (an accuracy approaching that of a slide rule and quite sufficient for the majority of problems met in electronics). The random errors do not usually exceed 0.1%; thus, when repeating measurements, the spread of trajectories is almost unnoticeable. The tracing speed of a trajectory depends on how rapidly the curvature changes and it can be regulated from about 1 to 10 mm/sec, thus it takes about 2-3 minutes to trace a trajectory of medium complexity. The trajectograph can be stopped at any point of a trajectory and this feature makes it easier to determine optimal

Card 2/4

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ACCESSION NR: AT4047275

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parameters. Simultaneously with the tracing of trajectories, the trajectograph can provide a relationship between any two of the following quantities: energy, velocity, phase, transit time, length of trajectory. The instrument requires only one operator without any special training in its operation; preferably the designer of the electron-optical system under investigation. The instrument has proved very reliable in operation and does not require any maintenance for many months. Plane trajectories of particles moving in the plane of symmetry of an electric field and in the plane of asymmetry of a magnetic field are theoretically analyzed and a mechanical model (a three-wheel system) of the solutions obtained is discussed. Relativistic effects are also considered. A system for computing the energy and the motion of a particle in a high-frequency field is analyzed. The following applications are discussed: modeling of a plane traveling wave, tracing of trajectories in crossed static fields, tracing electron trajectories in a nigotron and a microtron. The instrument was also used for tracing trajectories of electrons in the fields of resonators and waveguides of a constant transverse cross section of arbitrary shape. The problem of modeling electric fields in electrolytic tanks in the presence of space charge and the effect of space charge on the tracing of electron trajectories is also discussed. "The author thanks P.L. Kapitsa for his support during the experimental work, as well as the entire staff of the Physics Laboratory, especially B.P. Belov, V.I. Tsvetkov and N.I. Milyukov,

Card 3/4

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 11440-65
ACCESSION NR: AT4047275

who participated in the development of the trajectograph; he also thanks L. A. Vaynshteyn for his help in editing the paper." Orig. art. has: 29 figures, 67 equations and 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: EC, NP

NO REF SOV: 014 OTHER: 004

Card 4/4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 11444-65 AFWL/RAEM(a)/SSD/AFETR/ASD(a)-5/ESD(dp)/ESD(gs)/ESD(t)

ACCESSION NR: AT4047276 S/3055/64/000/003/0129/0147

AUTHOR: Prudkovskiy, G.P. (B)

TITLE: Production of trochoidal electron beams having reduced orbital motion

SOURCE: AN SSSR. Fizicheskaya laboratoriya. Elektronika bol'shikh moshchnostey, no. 3, 1964, 129-147

TOPIC TAGS: electron beam, trochoidal electron beam, oscillator theory, continuous wave oscillator, planotron, nigotron, trajectograph

ABSTRACT: The paper investigates the production of electron beams using electron sources proposed by P. L. Kapitsa [Elektronika bol'shikh moshchnostey, 1962], which make crossed-field oscillators more efficient. The electron-optical properties of emitters used in high-power c.w. crossed-field oscillators - the planotron and nigotron - are discussed. The production and characteristics of trochoidal electron trajectories were investigated using an analog computer (a trajectograph) in the case when a cylindrical electron emitter was placed inside a rectangular slot in the surface of a cathode. Such a system was found to be a focusing immersion-type lens. Its optical strength increased with the depth at which the emitter was located inside the slot. At a certain

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ACCESSION NR: AT4047276

distance from the slot, the trajectories bunched together (like a focus), this bunching repeating itself with a period equal to the period of the cycloid. Conditions were also found under which the electron beam followed an equilibrium trajectory characterized by the absence of any orbital motion in mutually perpendicular electric and magnetic fields. "The author thanks P. L. Kapitsa for suggesting the problem and evaluating the experimental results." Orig. art. has: 12 figures and 6 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: EC, NP

NO REF SOV: 005 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKOVSKIY, G.P.; TSYGANOV, E.N.

Trajectory plotter for calculating trajectories in high-frequency fields. Fiz. elek. no.1:27-34 '62. (MIRA 17:1)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

LEVIN, G.E.; PRUDKOVSKIY, G.P.

Automatic instruments for calculating and plotting charged particle paths; survey. Prib.i tekh.eksp. 7 no.1:7-19 Ja-F '62. (MIRA 15:3)
(Electronic analog computers)(Particles(Nuclear physics)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

VRBIK, Vl.; DRAPAL, S.; KRAUS, Vl.; LOBL, K.; VYKLICKY, M.; KABRHEL, A.; SUSTEK, A.; SLABA, J.; STETINA, K.; SCHREIBER, B.; PRUDKY, J.

Information on the reports of the State Research Institute of Material and Technology. Energetika Cz 13 no.1:53-54 Ja '63.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

RUMANIA

FRUNDEANU, C., Colonel, Medical Corps; and HALES, N., Major, Medical Corps.

"Current Data on Infectious Diseases"

Bucharest, Revista Sanitara Militara, Vol. 62, No. 3, May-June 1966; pp 537-542

Abstract: Review on interferon, intracellular biochemical events in infection; enzymatic tests to detect these; immunofluorescence and its applicability in various types of infectious disease for diagnostic purposes. 3 Soviet, 7 Western, 20 Rumanian references. Manuscript received 21 August 1965.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

KELLER, R.E.; PRUDNICHENKO, Ye.K.

Synthesis of ethyl-Δ^1-p-menthen-8-yl-, n-butyl-Δ^1 p-menthen-8-yl-, p-methylcyclohexyl-4-Δ^1-p-menthen-8-yl-, and p-menthan-3-yl-Δ^1-p-menthen-8-yl acetaldehyde acetals. Zhur.ob.khim. 31 no.10:3220-3222 O '61. (MIRA 14:10)

1. Voronezhskiy lesotekhnicheskoy institut.
(Acetaldehyde) (Ethers)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

S/080/60/033/012/024/024
D209/D305

AUTHORS: Keller, R.E., Rychkova, A.G., and Prudnichenko, Ye.K.

TITLE: Vinyl ethers, their polymers and copolymers for synthetic alcohols of the Shebenskiy Combine of Synthetic Aliphatic Acids and Alcohols

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 12, 1960, 2801 - 2802

TEXT: In view of the large quantity of alcohols produced at the Shebekinskiy Kombinat (Shebenskiy Combine) in the synthesis of fatty acids from petroleum paraffin the authors decided to test the possibility of using these alcohols as material for preparing vinyl alcohols, their polymers and copolymers. The method of A.Ye. Favorskiy et al (Ref. 4: Zh. obshch. khimii, 13, 1, 1943) was employed in the vinylization process, when three varieties of vinyl ether were obtained with the following boiling points and molecular weights: 165 - 210°, 172.0; 211 - 244°, 224.9; 247 - 276°, 250.6. These fractions are readily polymerized with a $FeCl_3$ cata-

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lyst and are additionally copolymerized with vinyl-butyl, vinyl-amyl and vinyl-furfuryl ethers. The authors also copolymerized vinyl ethers of the fraction boiling at 165 - 210° with styrol in sealed glass ampoules at 60° for 32 hours. The catalyst consisted of benzoyl peroxide, the molecular ratios of vinyl ether to styrol being 1 : 1, 1 : 3, 1 : 7, 3 : 1, 1 : 0, and 0 : 1. The best results, yielding a good plastic copolymer, were obtained with a molecular ratio of 1 : 7. Thus, the authors conclude that much of the alcohol at the Shebenskiy Combine may be converted into vinyl ethers which in turn are easily polymerized and copolymerized with styrol to provide material suitable for the preparation of plastics. There are 2 tables and 4 Soviet-bloc references.

ASSOCIATION: Voronezhskiy lesotekhnicheskiy institut (Voronezh Institute of Timber Technology)

SUBMITTED: May 30, 1960

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

KELLER, R.E.; PRUDNICHENKO, Ye. K.

Syntheses of acetaldehyde acetals based on vinyl ethers and α-terpineol. Zhur VKHO 6 no.2:232 '61. (MIRA 14:3)

1. Voronezhskiy lesotekhnicheskiy institut.
(Acetaldehyde) (Ethers) (Terpineol)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

KELLER, R.E.; RYCHKOVA, A.G.; PRUDNICHENKO, Ye.K.

Vinyl esters, their polymers and copolymers based on synthetic alcohol of the Shevekino-Combine of Synthetic Fatty Acids and Fatty Alcohols. Zhur. prikl. khim. 33 no.12:2801-2802 '60. (MIRA 14:1)

1. Voronezhskiy lesotekhnicheskiy institut.
(Esters) (Vinyl compounds)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

ASKINAZI, Kh.; PRUDNICHENKOV, A.

Fastening packages for transportation. Avt. transp. 38 no.11:15-16 N '60. (MIRA 13:11)

(Freight and freightage)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

BERLYAND, O.S.; GAVRILOVA, R.I.; PRUDNIKOV, A.P.

Functions satisfying the differential equation $y'' \pm 2xy' \pm 2ny = 0$. Inzh.-fiz.zhur. no.9:103-107 S '60. (MIRA 13:9)

1. Vychislitel'nyy tsentr AN SSSR, Moskva.
(Differential equations)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDNIKOV, A. P. (Moscow)

"On the Formation of a Laminar Flame Front."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 45834-66 EWT(1)/EWT(m)/T IJP(c) DS/AT

ACC NR: AP6030586 SOURCE CODE: UR/0413/66/000/016/0071/0071

37
B

INVENTOR: V'yalintsyn, V. A.; Prudnikov, I. A.

ORG: none

TITLE: Accelerated electron beam locator. Class 21, No. 184988

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 71

TOPIC TAGS: electron beam, accelerated electron, electron beam position, electron beam locator, locator

ABSTRACT: The proposed device for determining the position of an accelerated electron beam in relation to the central axis of the pickup is based on the use of the secondary emission effect. The device contains an electric measuring unit and metal foil collecting and emission electrodes. The latter are placed in the path of the accelerated electron beam and arranged both in series and in parallel. They are separated by protective electrodes. To facilitate the determination and adjustment of the beam position, the emission electrodes are cut in half in

Card 1/2 UDC: 537.533.8

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 45834-66

ACC NR: AP6030586

mutually perpendicular directions and connected to the electric measuring unit, which compares secondary electron currents transmitted through the halves of the emission electrodes. Orig. art. has: 1 figure. [Translation] [DW]

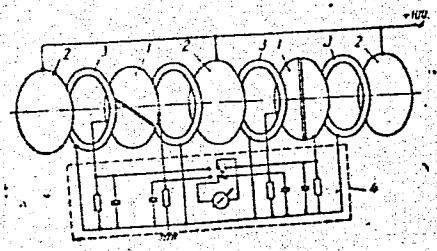

Fig. 1. Accelerated electron beam locator. 1—Emission electrodes; 2—collectors; 3—protective electrodes; 4—electric measuring device

SUB CODE: 09/ SUBM DATE: 01Jun63/

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

82824

S/115/60/000/007/008/011
B019/B058

9.6000

AUTHORS: Mazurov, M. Ye., Prudnikov, I. N.

TITLE: The Measurement of Direct and Alternating Currents by Means of the Hall Effect

PERIODICAL: Izmeritel'naya tekhnika, 1960, No. 7, pp. 45 - 46

TEXT: If an alternating current flows through a magnetic coil and a Hall pickup, both connected in series, formula (1) $U_x = kI^2 + kI^2 \cdot \cos 2\omega t$ is valid for the Hall voltage, as is well known. It may be seen from this relation that the Hall voltage has a constant component which can be measured by means of a millivoltmeter. This constant component of the Hall voltage can be used for the measurement of an alternating current. The small quantity of the constant voltage component and the nonlinear dependence of this voltage component on the current measured are the drawbacks of such an instrument. The frequency range to which this instrument can be used is limited by the coil inductance, and a radical method for the reduction of this coil inductance

Card 1/2

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The Measurement of Direct and Alternating Currents by Means of the Hall Effect

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S/115/60/000/007/008/011
B019/B058

by using a ferromagnetic core is mentioned. Furthermore, the influence of foreign magnetic fields is prevented by using two pickups. The frequency range can be further widened by means of a correction link (Fig. 3), consisting of a resistance and a capacitance. The compensation of the temperature error by using the negative temperature coefficient of the material of the Hall pickup, is dealt with next. The authors finally discuss such an instrument, the circuit of which is shown in Fig. 4. The 3 measuring ranges are 2.5, 5, and 10 a, the frequency ranges from 0 to 100 kilocycles, the error amounts to 3.5%, and the temperature error amounts to 1% in the range of from 10 to 40°C. There are 4 figures and 2 Soviet references.

44

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDNIKOV, I.N.

New system of wages in the woodpulp and paper industry. Bum.prom. 35 no.4:3-4 Ap '60. (MIRA 13:10)
(Woodpulp industry) (Paper industry)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

SOV/137-59-5-11324

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 263 (USSR)

AUTHOR: Prudnikov, M.I.

TITLE: Investigations Into the Theory of Cold Sheet Bending

PERIODICAL: V sb.: Novoye v kuznechno-stampovochn. tsekhakh Leningrada, Leningrad, 1958, pp 154 - 177

ABSTRACT: The author studied clear (circular) plastic bending with strengthening and transverse plastic bending. The analysis of the stress distribution in clear plastic bending with strengthening is based on the direct use of the $\sigma_i = \phi(\varepsilon_i)$ curve, without simplification. In establishing the law of the stress distribution over the thickness of the bent sheet, the author started from the assumption that the qualitative characteristic of the intensity of the strained state (σ_i) was by its physical nature, σ_s of the metal, strengthened by deformation, and did not depend on the form of the strained state. Thus, there is a possibility to extend the condition of plasticity $\sigma_1 - \sigma_3 = 2/\sqrt{3}\,\sigma_i$ to the process of finite plastic deformation and to take into account the

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Investigations Into the Theory of Cold Sheet Bending

strengthening of the metal. From the combined solution of the equation of plasticity with the equation of equilibrium, analytical expressions of tangential, radial and axial stresses in clear bending with an without strengthening were found for the external and internal zone. It is shown that the location of the neutral layer of stresses does not depend on the actual dimensions of its external and internal surfaces. The expression of the bending moment and of the relative bending moment is given. Diagrams are presented on relative bending moments according to experimental and calculated data. The work spent on clear plastic bending of the sheet was calculated without allowance for the non-identical deformation of layers of average sheet thickness, it was expressed by the width of the sheet, the central angle formed by the face ends, the specific mechanical work and the running radius of bending. Transverse plastic bending is analyzed for the case of free bending of the sheet lying on two stationary rounded supports for which the law of plastic bending was established. The law connects the external force and the bending produced. The bending at the moment of maximum force was determined. The maximum force and the mechanical work

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Investigations Into the Theory of Cold Sheet Bending

during U-shaped bending was determined from the known characteristics of the metal and the die. Experimental and calculated data on the values of maximum force in U-shaped bending were compared. They showed that the suggested formulae may be recommended for the calculation in planning technological processes in bending sheet blanks.

V.Zh.

Card 3/3

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PROZOROVSKIY, Yu. (UA3A W)

Driver for five frequency bands. Radio no.1:18-20 Ja '60. (MIRA 13:5)
(Oscillators, Electric)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

05445
SOV/120-59-3-16/46

AUTHOR: Prudkovskiy, G. P.

TITLE: An Electrolytic Tank as a Computer (Primeneniye Elektroliticheskoy vanny v kachestve vychislitel'nogo ustroystva)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3, pp 77-79 (USSR)

ABSTRACT: The instrument seeks out and delineates the equipotential lines in the tank. The instrument resembles that described by Holloway (Proc. Inst. Elec. Eng 103B, Nr 8, 1956). An ac potential is applied to the tank and to a voltage divider (Fig 1); the output contains a phase-sensitive detector, which receives the amplified signal from the probe and causes the printing head to operate every time the probe passes through the equipotential line defined by the voltage divider. The probe is moved by hand. Fig 2 gives a general impression of the instrument. Fig 3 shows the results for a tank designed to reproduce a complex function tabulated in Yanke and Emde, while Fig 4 shows $\exp x \cos y$. The paper ends with a brief note on the use of the tank

Card 1/2

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SOV/112-59-4-7630

8(0), 9(0)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 169 (USSR)

AUTHOR: Prudkovskiy, G. P.

TITLE: Some Problems of Constructing Path Describers. Use of an Electrolytic Cell in Computers

PERIODICAL: V sb.: Mezhvuz. konferentsiya po primeneniyu modelirovaniya v elektrotekhn. zadachakh i matem. modelirovaniya. M., 1957, pp 150-151

ABSTRACT: Development of an instrument is reported which can map equipotentional lines of a field by means of a mechanical scanning within a required region. The accuracy can be as high as 0.1% for the fields selected. A flat field can be mapped, according to a specified function distribution, on a straight-line segment, in an electrolytic cell; this permits using the electrolytic cell as a nonlinear primary element of any function for a computer. To solve the Poisson equation, current elements and a contour-shaped cell bottom are used, the space-charge distribution being checked by a vertical double

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Some Problems of Contructing Path Describers. Use of an Electrolytic Cell . . . .

probe; the probe measures the vertical component of the electric field strength at the electrolyte surface; the vertical component presents the right member of the 2-dimensional Poisson's equation.

V.V.V.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKOVSKIY, Z.P.

Determining the trajectories of charged particles in the general case of motion in an electromagnetic field. Mat.vop.inzh.fiz. no.3:36-50 '57. (MIRA 12:7)

(Electronic analog computers) (Particles, Elementary)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

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Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu radioaktivnykh i stabil'nykh izotopov i izlucheniy v narodnom khozyaystve i nauke, Moscow, 1957

Polucheniye izotopov. Moshchnyye gamma-ustanovki. Radiometriya i dozimetriya; trudy konferentsii... (Isotope Production. High-energy Gamma-Radiation Facilities. Radiometry and Dosimetry; Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science) Moscow, Izd-vo AN SSSR, 1958. 293 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR; Glavnoye upravleniye po ispol'zovaniyu atomnoy energii SSSR.

Editorial Board: Prolov, Yu.S. (Resp. Ed.), Zhavoronkov, N.M. (Deputy Resp. Ed.), Aglintsev, K.K., Alekseyev, B.A., Bochkarev, V.V., Leshchinskiy, M.I., Malkov, T.P., Sinitsyn, V.I., and Popova, G.L. (Secretary); Tech. Ed.: Movichkov, N.D.

PURPOSE: This collection is published for scientists, technologists, persons engaged in medicine or medical research, and others concerned with the production and/or use of radioactive and stable isotopes and radiation.

COVERAGE: Thirty-eight reports are included in this collection under three main subject divisions: 1) production of isotopes 2) high-energy gamma-radiation facilities, and 3) radiometry and dosimetry.

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PART I. PRODUCTION OF ISOTOPES

Prolov, Yu.S., V.V. Bochkarev, and Ye.Ye. Kulish. Development of Isotope Production in the Soviet Union 5
This report is a general survey of production methods, apparatus, raw materials, applications, investigations and future prospects for radio isotopes in the Soviet Union.

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Alekseyevskiy, N.Ye., A.V. Dubrovin, G.I. Kosourov, G.F. Prudkovskiy, S.I. Filimonov, V.I. Chekin, V.N. Shelyapin (deceased) and K.K. Shuvalova. Utilization of Mass Spectrometers With a Nonhomogeneous Field for Analyzing Isotopes of Light Elements 73

Ordzhonikidze, K.O., and O.N. Zubarev. Relative Propagability of Palladium and Germanium Isotopes 78

Rosen, A.M. Some Problems on the Theory of Isotope Separation 86

Gverdtsiteli, I.G., and V.K. Tskhakaya. Separation of Isotopes of Light Elements by Diffusion in Vapors 113

Barykin, G.F., and R.Ye. Kucherov. A Diffusion Column for Separating Isotopes 122

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDNIKOV, P.G., inzh.

Using the offset printing method to produce imitations of valuable woods. Der.prom. 9 no.9:18-19 S '60. (MIRA 13:9)

1. Kiyevskaya mebel'naya fabrika im. Bozhenko.
(Wood finishing) (Furniture industry)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

KRETOVA, Ol'ga Kapitonovna; PRUDKOVSKIY, P.N., red.; SERADZSKAYA, P.G., tekhn.red.

[We who live near Voronezh; a sketch] Pod Voronezhem u nas; ocherk. Voronezh, Voronezhskoe knizhnoe izd-vo, 1959. 27 p. (MIRA 14:1)

(Manukovskii, Nikolai Fedorovich)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

KRETOVA, O., pisatel'; BULAVIN, M., pisatel'; GLUKHOV, A., kand.ekon.nauk; MITROSHIN, S., kand.istoricheskikh nauk; PLOTNIKOV, A., vrach; MOREV, M., zhurnalist; PRUDKOVSKIY, P.E., red.; VOROTNIKOVA, R.V., red.; SKRADZSKAYA, P.G., tekhn.red.

[From impoverishment to prosperity; past and present conditions of the villages of Novo-Zhivotinnoye and Mokhovatka, Berezov District, Voronezh Province] Ot oskudeniia k protsvetaniiu; proshloe i nastoiashchee sel Novo-Zhivotinnogo i Mokhovatki Berezovskogo raiona Voronezhskoi oblasti. Voronezhskoe knizhnoe izd-vo, 1958. 77 p. (MIRA 12:3)

1. Zaveduyushchiy Novo-Zhivotinnovskoy uchastkovoy bol'nitsey (for Plotnikov).

(Voronezh Province--Villages)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

FRUDKY, J. : LOBL, K. : PRUCHA, J.

Notes on the problem of the technology of brazing bandage-wires and the protecting plates of steam-turbine, blades.

P. 166 (Zvaranie) Vol. 6, No. 6, June 1957, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC. - VOL. 7, NO. 1, JAN. 1958

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKY, J.

PRUDKY, J. Holding machines. p. 357, Vol 1, no 8, Aug. 1956 STROJIRENSKA VYROBA Praha, Czechoslovakia

SOURCE: EAST EUROPEAN ACCESSIONS LIST (EEAL) VOL 6 NO 4 APRIL 1957

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDKY, J.

A test for welders, p. 93, ZVARANIE, (Ministerstvo hutneho prumyslu a rudnych bani a Ministerstvo strojarstvo) Bratislava Vol. 3, No. 3, Apr. 1954

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 4, No. 12, December 1955

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

Z/032/61/011/002/011/013
E073/E335

AUTHOR: Prudký, J.

TITLE: Progress in the Field of Defectoscopy

PERIODICAL: Strojírenství, 1961, Vol. 11, No. 2, p. 154

TEXT: The report is devoted to technical innovations relating to methods and equipment for destruction-free testing of materials. It has been sub-divided into the following sections; testing with ultrasonics; testing with X-ray radiation; testing with very hard X-ray radiation; testing with γ-ray radiation; auxiliary apparatus and equipment of radiographical laboratories; testing by magnetic methods; continuous testing by ionisation; magnetic and electric methods; testing of the tightness; classification of weld defects on the basis of graphical pictures.
1960, Prague: SVÚMT Z-60-842.
(This is a complete translation.)

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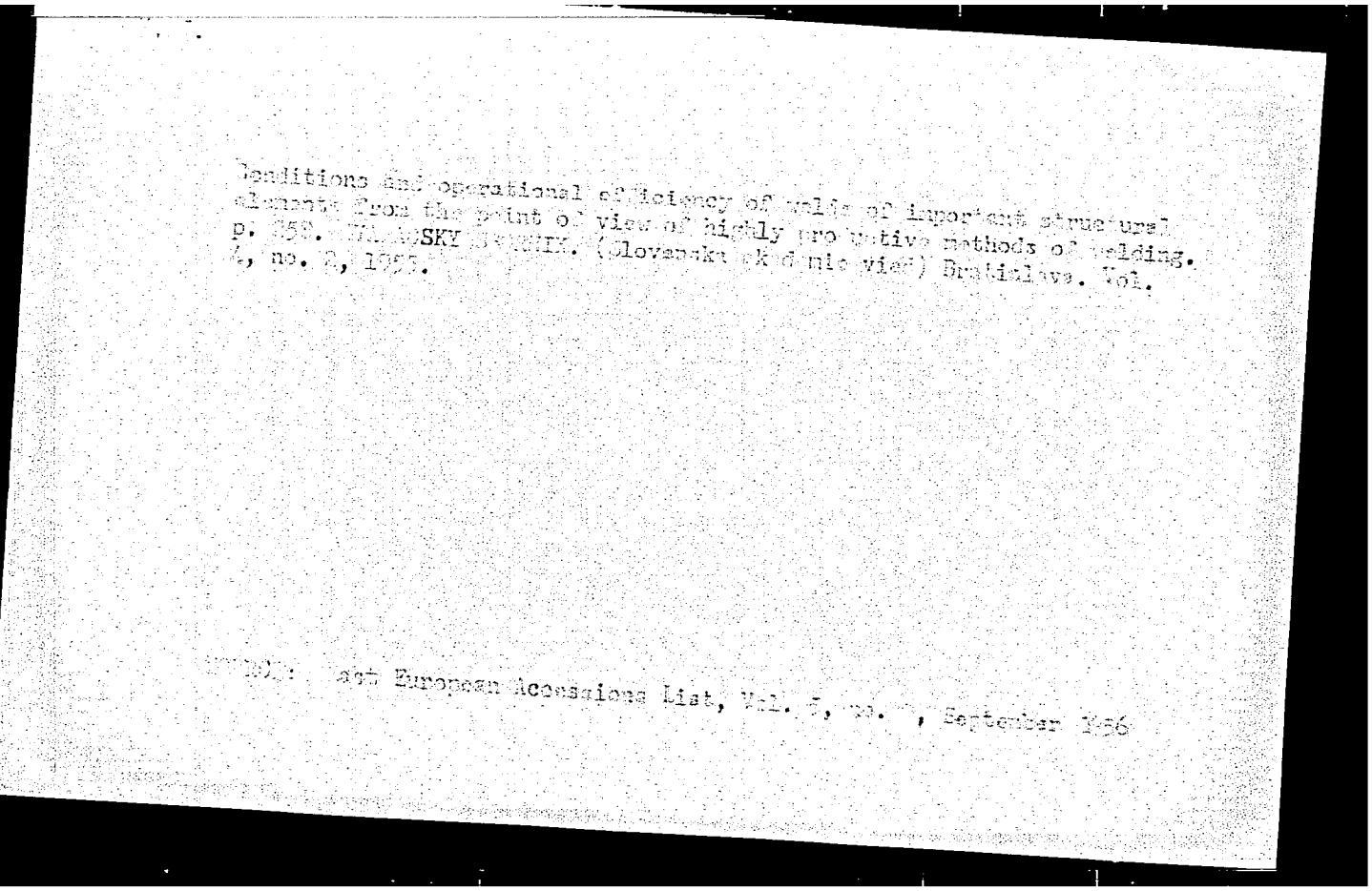

Conditions and operational efficiency of welds of important structural elements from the point of view of highly productive methods of welding. p. 150. ZVÁRSKY SBORNÍK. (Slovenská akademie věd) Bratislava. Vol. 4, no. 2, 1955.

[illegible]: East European Accessions List, Vol. 5, no. , September 1956

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

YEGOROV, A.P., shofer; VOYTANIK, N.M., shofer; KOZINTSEV, D.K., shofer; POLULYAKH, V.Ya., shofer; KAMATSKIY, V.N., shofer; VARSHAVSKAYA, A.A., shofer; VATULIN, G.N., shofer; SHANDURSKIY, P.T., shofer; YEMEL'YANOV, G.A., shofer; VERBOV, A.G., shofer; DANILETS, P.P., shofer; BOGANCHENKO, V.A., shofer; PRUDNIKOV, A.F., shofer; V'YUNIKOV, S.I., shofer; SOLOVEY, I.N., shofer; MURASHKO, D.F., shofer

We prize our workers' honor. Avt. transp. 40 no.12:3-4 D '62.
(MIRA 15:12)

1. Simferopol'skiy avtobusnyy park (for Yegorov, Voytanik). 2. Simferepol'skiy taksomotornyy park (for Murashko, Kozintsev). 2. Kerchenskiy avtobusno-taksomotornyy park (for Polulyakh). 4. Yevpatoriyskiy avtobusno-taksomotornyy park (for Kamatskiy). 5. Yaltinskiy taksomotornyy park (for Varshavskaya). 6. Feodosiyskiy taksomotornyy park (for Varshavskaya). 7. Sevastopol'skiy avtobusno-taksomotornyy park (for Yemel'yanov). 8. Simferopol'skiy gruzovoy avtopark (for Verbov). 9. 2-y Simferopol'skiy gruzovoy avtopark (for Verbov). 9. 2-y Simferopol'skiy gruzovoy avtopark (for Danilets). 10. Bakhchisarayskiy avtopark (for Boganchenko). 11. Sevastopol'skiy avtopark (for Prudnikov). 12. 1-y Simferopol'skiy gruzovoy avtopark (for V8Yunikov, Solovey).

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDNIKOV, A. G.

(Physico Technical Institute, Moscow)

"Flame Turbulence"

paper submitted at the Seventh Intl. Symposium on Combustion - London and Oxford, England, 28 Aug - 3 Sep '58.

C - 3,800,830, 25 July 1958

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

SOV/24-58-7-26/36

AUTHOR: Prudnikov, A.G. (Moscow)

TITLE: Turbulence in Flames (O turbulentnosti v plamani)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk, 1958, Nr 7, pp 130 - 133 (USSR)

ABSTRACT: Flame turbulence was investigated by a photographic method described previously by the author (Dissertation, Moscow Physico-technical Institute, 1957), using tobacco smoke to indicate turbulence under cold-flow conditions and sodium chloride vapour under flaming conditions. Results were obtained for "open" and "closed" jet combustion and the results compared with those of other workers. There are 4 figures and 6 references, 4 of which are English and 2 Soviet.

SUBMITTED: November 12, 1957

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TRW Dwight, A. D.

1(1); 10(2); 24(1) PHASE I BOOK EXPLOITATION SOV/2541

Akademiya nauk SSSR. Energeticheskiy institut

Goreniye v turbulentnom potoke; diskussiya na obshchemoskovskom seminare po goreniyu pri energeticheskom institute AN SSSR (Combustion in Turbulent Flow; a Discussion in the All-Moscow Seminar at the Power Engineering Institute, USSR Academy of Sciences) Moscow, Izd-vo AN SSSR, 1959. 167 p. Errata slip inserted. 2,000 copies printed.

Ed.: L. N. Khitrin, Corresponding Member, USSR Academy of Sciences; Eds. of Publishing House: R. I. Kosykh and M. M. Knoroz; Tech. Ed.: P. S. Kashina.

PURPOSE: This collection is intended for research scientists in the fields of thermodynamics and fluid mechanics.

COVERAGE: The collection contains six papers which present the results of experimental and theoretical research on combustion phenomena under conditions of turbulent flow.

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Preface 3

Shchetinkov, Ye.S. On the Calculation of Flame Propagation in a Turbulent Flow 49

This paper presents a theoretical study of flame propagation in a turbulent flow based on a model of turbulent combustion which assumes homogeneous reactions within turbulent moles (model of microvolume combustion). The method of calculation permits a quantitative numerical analysis of the effects of various fuel-mixture and flow parameters (initial temperature, pressure, velocity, turbulence, etc.) on such combustion characteristics as flame velocity, width of combustion zone, and stability of the flame tongue. Under conditions where the microvolume-combustion model is realized, the calculated results are in reasonably good qualitative agreement with experiment.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

Vlasov, K. P. Experimental Investigation of the Combustion Zone of a Turbulent Flame (Supplement to Ye.S. Shchetinkov's Report)

This paper gives details of the test setup and some results of an experimental study of the combustion zone in a turbulent flame. The test method was based on small-lag measurements of the ionized current and the temperature. Experimental data on the distributions of the ionized current and the temperature are given and the measured statistical characteristics of these quantities are presented as functions of the depth of the combustion zone and the flow velocity.

Kogarko, S. M. On the Model for Combustion in a Turbulent Flow 58

On the basis of the Damkoehler-Shchelkin hypothesis, this paper considers the mechanism of the combustion of a homogeneous mixture in turbulent motion in the cross section of a tube. The stabilization of the flame tongue is achieved with the aid of a pilot flame. The author questions the validity of the model of combustion proposed by Shchetinkov in the first paper in this collection.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

Sokolik, A. S. On the Experimental Basis of the Theory of Turbulent Combustion 63

This paper is concerned with the experimental foundations of the theory of turbulent combustion. A "laminar" model of the turbulent combustion process is assumed. On this model, the turbulent flame is represented by an ordinary propagation of laminar flame with a normal laminar flow velocity which is constant along the entire separation surface (between luminous and ignited gas), but with an increased combustion surface. In the laminar model, it is considered that the possibility exists of an increase in normal combustion velocity under the action of small-scale turbulence. The development of large-scale turbulence accelerates the combustion. Experimental data are presented which tend to substantiate the physical concepts presented. A discussion of luminescence and ionization in laminar and turbulent flames is also given.

Discussion 81

Critical comments on the papers presented and additional observations on the mechanism of turbulent combustion are made by K. P. Vlasov, V. Ya. Basevich, and A. N. Voinov.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

Prudnikov, A. G. Measurement of the Turbulence of Air Flows and Flames by the Optical Diffusion Method 88

This paper presents a new method for studying the turbulence of air flows and flames. The method is a modification of the diffusion method which combines the simplicity of the diffusion method with the speed of the thermodynamic method. The basic relationships are given, the accuracy of the method is analyzed, the experimental set-up is described, and a wide variety of experimental results are presented. Included are data for flows in tubes, submerged jets, and open flows with and without the presence of grids. A variety of results are also given for turbulence in flames, including the effects of grids and the scale of the turbulence.

Semenov, Ye.S. Investigation of the Turbulent Motion of a Gas Under Piston Engine Conditions 141

This paper investigates several turbulence characteristics of the motion of a gas. Included are studies of the characteristics of the gas motion during intake and compression in the presence of a source of turbulence, the variation of turbulence character-

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istics during a cycle, and in the combustion phase the effects of certain parameters and engine regimes on the turbulence and the frequency spectrum of turbulent pulsations. The effect of the shape of the combustion chamber was not investigated. A detailed and comprehensive discussion of the research methods and test apparatus is presented and reproductions of many oscillograph methods are given. The paper is based on data presented in an earlier report by the author and A. S. Sokolik, "Investigation of the Turbulent Motion of a Gas Under Piston Engine Conditions". (Issledovaniye turbulentnogo dvizheniye gaza v usloviyakh porshnevogo dvigatelya), Izv. AN SSSR, OTN, 1958, No. 8.

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

[illegible], Boris Viktorovich; [illegible], Sergey Andreyevich; SHERALOV, Ivan Vanifat'yevich; BORODACHEV, Vadim Yakovlevich; [illegible], Mark Semenovich; BRUDNIKOV, Aleksandr Grigor'yevich; KHITRIN, L.N., retsenzent; SHEYNFAYN, L.I., red.

[Physical principles of the working process in combustion chambers of ramjet engines] Fizicheskie osnovy rabochego protsessa v kamerakh sgoraniia vozdushno-reaktivnykh dvigatelei. [By] B.V.Raushenbakh i dr. Moskva, Mashinostroenie, 1964. 525 p. (MIRA 17:7)

1. Chlen-korrespondent AN SSSR (for Khitrin).

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A006/A001

11,7200

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 17, p. 60, # 68664

AUTHOR: Frolikov, A.G.

TITLE: Measurement by the Optical-Diffusion Method of Turbulence of Air Flows and Flames

PERIODICAL: V sb.: goreniye v turbulentnom potoke, Moscow, AN SSSR, 1959, pp. 83-140

TEXT: The author reports on results of investigations of turbulence characteristics in a cold flow and in the combustion zone using the optical-diffusion method. This method consists in the determination (from photographs) of the diffusion rate of smoke particles in the cold flow and of luminescent Na particles in the flame. Changes in the turbulence intensity, in the rate of turbulent transfer and in the Lagrange scale of turbulence, are given with a distance from the pipe cut for an open flame and behind a grate for a closed flame. The

/B

Card 1/2

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S/081/60/000/017/003/016
A006/A001

Measurement by the Optical-Diffusion Method of Turbulence of Air Flows and Flames

author notes the generation of additional turbulence in the flame, increasing with a rise of flame temperatures. /B

A. Sokolik

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

28377
S/124/61/000/008/026/042
A001/A101

11.7200

AUTHOR: Prudnikov, A.G.

TITLE: On an approximate method of analytical investigation of the flame laminar front

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 8, 1961, 73-74, abstract 8B519 (V sb. "3-ye Vses. soveshchaniye po teorii goreniya. T.I", Moscow, 1960, 3 - 10)

TEXT: To determine numerically the propagation velocity of the flame laminar front, the author proposes to replace, in the known thermal flame theory of Zel'dovich and Frank-Kamenetskiy, the actual rate of reaction and its quadrature by a certain analytical function whose quadrature is tabulated. In particular, the rate of heat liberation Φ is replaced by a Gaussian function of the form:

$$\Phi(x) = \Phi_{max} e^{-\frac{x^2}{2\sigma^2}}$$

where σ is a parameter to be determined from experiments, x is a space coordinate (one-dimensional problem). The author proposes to assume the characteristic

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28377

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A001/A101

On an approximate method ...

width of the flame front as indeterminate parameter; under characteristical width the author understands such a width at which reaction rate is reduced by a factor of $\sqrt{e}$. He shows that a more rigorous approximation of the true reaction rate must satisfy the following condition: the first and second derivatives of the true function and those of the approximating function must be equal at the point of the maximum heat liberation.

V. Skobelkin

[Abstracter's note: Complete translation]

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

25742
S/123/61/000/012/035/042
A004/A101

11,7200

AUTHOR: Prudnikov, A. G.

TITLE: Equation of a turbulent tongue of flame

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 12, 1961, 22, abstract 12I179 (V sb. "3-ye Vses. soveshchaniye po teorii goreniya, v. 1", Moscow, 1960, 100-108)

TEXT: The author writes down a system of equations of mass and energy conservation and the equation of state. Density, temperature, rate of heat release on account of chemical reaction and the components of instantaneous flow velocity are considered as random functions. The author analyzes the case of a one-dimensional combustion zone and its equivalent, a combustion zone at the boundary of two flat flows (fresh mixture and combustion products), flowing at equal velocities. The process of formation of a one-dimensional combustion zone is conventionally divided into three stages. At the initial stage the combustion zone is formed in the same way as in the laminar flow. From some moment on the distortion and expansion of the instantaneous combustion zone by minimum eddies sets in. This moment begins the sooner the less the internal turbulence scale,

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11.1000

69803

S/024/60/000/01/005/028

AUTHOR: Prudnikov, A.G. (Moscow) E081/E341

TITLE: Determination of the Mean Parameters of a Turbulent Flame Jet

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 1, pp 43-54 (USSR)

ABSTRACT: The paper is a continuation of previous work (Ref 2); it gives formulae for the calculation of the mean temperatures of a turbulent flame jet with open-flow under different ignition conditions and formulae for calculating the velocity of turbulent combustion according to the mean temperature profiles in the jets. The mean temperature may be written as Eq (1), where P_1 and P_2 are the probability of appearance at an arbitrary point of the corresponding cold and burnt mixtures, T_1 is the temperature of the fresh mixture, T_2 may be regarded as the product of the maximum adiabatic temperature of the combustible mixture and the chemical completeness of combustion and T_{max} is the temperature of the combustion products; the

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Determination of the Mean Parameters of a Turbulent Flame Jet

probability of P_2 can be interpreted as the physical completeness of combustion. According to the Gaussian law, the mean temperature in a one-dimensional turbulent jet at the point x and at time t is given by Eq (3), in which Y^2 is the dispersion of turbulent transfer. Figure 1 illustrates the determination of mean temperature in a one-dimensional zone of a turbulent mixture of two gases (a - at the initial moment, b - at the moment t). The probability of finding fresh mixture at the point x is given by Eq (12), where $\Phi\xi$ is the tabulated probability integral; σ^2 is the dispersion of turbulent diffusion in the two reacting gases and ρ is density. On the basis of the probability concept, the profile of mean density (temperature) for various boundary conditions is found: 1) turbulent jet with plane precombustion chamber (Figure 2a - Figure 2; the determination of the mean temperature of a turbulent flame jet in a current). The probability $P_2(x, y)$ is given by Eq (18) with a_c the

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Determination of the Mean Parameters of a Turbulent Flame Jet

half-width of the precombustion chamber; 2) turbulent jet with axially symmetric burner. $P_2(x, r)$ is given by Eq (19) with J_o the zero order Bessel function, $i = \sqrt{-1}$, a the mean radius of the jet and a_o the radius of the precombustion chamber (burner); 3) turbulent jet at a plane bunsen burner. Boundary conditions: width of initial stream of the homogeneous mixture equals $2a_o$; width of burner equals $2b_o$; the x-axis coincides with the flow axis. (Figure 3 - the determination of the mean temperature in the turbulent jet of a plane bunsen burner, a - physical completeness of combustion through the jet sections of a plane bunsen burner, б - physical completeness of combustion along the axes of the turbulent jet of a plane bunsen burner). The probability $P_2(x, y)$ is given by Eq (23). On the flow axis the change in completeness of combustion is given by Eq (25) ($y = 0$). This function is plotted in Figure 3б (continuous curves). The theory is compared

Card3/6

4

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Determination of the Mean Parameters of a Turbulent Flame Jet

with experimental data in Figures 4, 5 and 6 [Figure 4 - distribution of the probability of finding the combustion products in the cross-section of an open jet with a "point" burner: a - data of A.I. Lushp (V = 23 m/sec, α = 1.2, t = 150 °C, d_{Tp} = 150 mm); б - data of A.T. Lushp (V = 43 m/sec, α = 1.2, t = 150 °C, d_{Tp} = 150 mm); ●● - experimental points; ——theoretical curves. Figure 5 - comparison of theory with experiment (turbulent jet with stabiliser): 1 - data of V.P. Solntsev ($2a_o$ = 35 mm, V = 50 m/sec, α = 1.5); 2 - data of I.V. Bespalov ($2a_o$ = 40 mm, V = 70 m/sec, α = 1.35); 3 - data of Yu.A. Shcherbina ($2a_o$ = 60 mm, V = 26 m/sec, α = 1.8). Figure 6 - comparison of theory with experiment (turbulent jet between two stabilisers: a - data of I.V. Bespalov ($2a_o$ = 40 mm, V = 90 m/sec, α = 1.4 homogeneous mixture); б - data of I.V. Bespalov ($2a_o$ = 20 mm, V = 70 m/sec, α = 1.4 heterogeneous mixture);

Card4/6 ●● - experimental points; —— - theoretical curves].

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

69803
S/024/60/000/01/005/028
E081/E341

Determination of the Mean Parameters of a Turbulent Flame Jet

Formulae (pp 51 - 52) are derived for the velocity of turbulent combustion in the following cases:
1) turbulent jet with plane precombustion chamber;
2) turbulent jet with axially symmetric burner;
3) turbulent jet at a plane bunsen burner. As a result of analysis of the experimental data, two conclusions are drawn:
A) it is necessary to use the existing experimental data on u_T' (Eq (26), where u_T' is the mean velocity of motion of the combustion zone in relation to the fresh mixture), δ_T (the width of the combustion zone, Eq 29) and δ_x (the width of the turbulent combustion zone along the mean stream of flow) with considerable caution in view of the inaccuracy and indeterminacy of these conceptions, which depend on particular conditions of experiment, etc;
B) this data is unsuitable for the accurate analysis of the two fundamental parameters of a turbulent jet,

Card5/6

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Determination of the Mean Parameters of a Turbulent Flame Jet

the mean a(x) (Figure 2) and the dispersion $\sigma^2(x)$. For this purpose it is necessary to have basic experimental profiles of the mean jet temperature obtained if possible by several methods. There are 6 figures and 2 Soviet references.

SUBMITTED: April 22, 1959

Card 6/6

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

S/020/62/144/006/009/015
B108/B102

AUTHORS: Prudnikov, A. G., and Sagalovich, V. N.

TITLE: Statistical description of a turbulent current

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 6, 1962, 1258-1261

TEXT: A turbulent jet carried along in a current is described statistically. The mean velocities at the interfaces of the two currents are assumed to be equal. Density (temperature) is assumed to have a discontinuity. The diffusion of a turbulent current can then be described by the equations for conservation of mass and momentum as derived from the transfer and momentum equations (A. N. Kolmogorov, UMN, no. 5 (1938)). The dispersion of the initial velocity and temperature profiles is described with the aid of the Taylor equation:

$$d\sigma^2/2dx \simeq \frac{D_0 + D_T(x)}{\bar{u}_{av}(x)},$$

where D is the coefficient of turbulent diffusion. If the dispersion of these quantities and their interrelation is known, it is possible to

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

Statistical description of a...

S/020/62/144/006/009/015
B108/B102

describe the current with the aid of only one parameter (e.g. temperature dispersion along flow axis). There are 3 figures.

PRESENTED: February 5, 1962, by G. I. Petrov, Academician

SUBMITTED: January 30, 1962

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

ACC NR: AP6017828 (N) SOURCE CODE: UR/0147/66/000/002/0059/0067

AUTHORS: Zamyatina, N. A.; Prudnikov, A. G.; Sagalovich, V. N.

ORG: none

TITLE: Diffusion parameters of a turbulent jet

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1966, 59-67

TOPIC TAGS: turbulent jet, gas diffusion, parameter, turbulent mixing, gas density, wake, wake flow

ABSTRACT: A jet which escapes from a circular opening of radius a_0 into a wake of velocity V_1 is examined. The density of the gas of the wake is ρ_{01} and its temperature T_{01}; the corresponding parameters of the jet are V_2, ρ_{02}, and T_{02}. A model of the jet-wake (black-white) mixing is used (see Fig. 1). The probabilities of the appearance of black and white gas are calculated; these probabilities can be interpreted as the average fractions occupied by volumes of black and white gases in a space about a certain point. A model of grey mixing is also examined. If the diffusion parameters are known, then the temperature profiles can be found by examining the process of grey mixing with a given dispersion. It is found difficult to say a priori at what values of the velocity and temperature ratios m and n mixing will be optimal.

Card 1/2

UDC: 532.517.4

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L 10[illegible]4-66
ACC NR: AP6017828

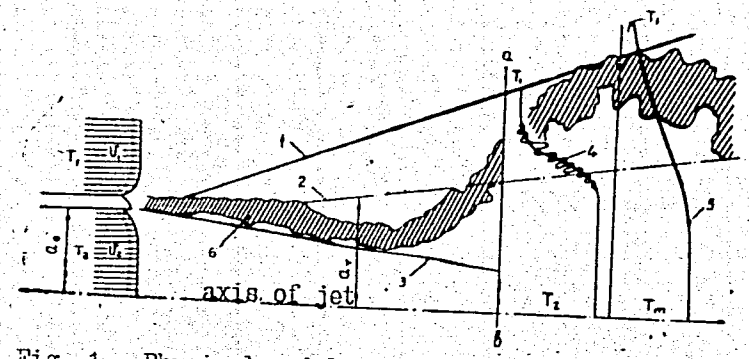

Fig. 1. Physical model of jet mixing (case of unique interface): 1 - external boundary of jet; 2 - mean statistical boundary of jet; 3 - internal boundary; 4 - "instantaneous" temperature profile averaged over samll-scale pulsations; 5 - time average of temperature profile; 6 - layer of molecular mixing.

Orig. art. has: 15 formulas, 1 diagram, and 5 graphs.

SUB CODE: 20/ SUBM DATE: 22Jan65/ ORIG REF: 004/ OTH REF: 005

Card 2/2 MLF

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

ACC NR: AP6036258 SOURCE CODE: UR/0000/003/0104/0110

AUTHOR: Prudnikov, A. G.; Zamyatina, N. A.

ORG: none

TITLE: The rate of molecular mixing in the main section of a turbulent jet

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1966, 104-110

TOPIC TAGS: combustion, diffusional combustion, propulsion, afterburner, air breathing engine, TURBULENT JET, TURBULENT MIXING, FLOW VELOCITY, HOMOGENEOUS FLUID

ABSTRACT: The molecular homogeneity of a combustible mixture controls the reaction rate in diffusional combustion, and it is, therefore, the most important parameter in this process. In the present study, experiments were made to study the mixing of two concentrical jets and the molecular homogeneity in the mixing zone. A cold air stream containing $NaNO_3$ vapors was discharged into a concurrent stream of hot combustion products generated by the combustion of a gasoline-air mixture. The hot flow had a temperature of 1650—1800K and a velocity in the 65—90 m/sec range. The cold air stream was injected through uninsulated tubes of 10, 4, and 2 mm diameter located concentrically in the hot flow. The cold gas stream at the outlet from the tube had

Card 1/2 UDC: 532.517.4.

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ACC NR: AP6036258

temperatures of 1100—1400K and velocities of 50—240 m/sec. The light intensity of the hot sodium atoms was determined from photographs and correlated with flow parameters to obtain values for the dispersion and the homogeneity of the gas. The dispersion was found to depend not on the jet diameter but only on the velocity ratio. It had a minimum when both jets had equal velocities. It is concluded that the width of the turbulent-molecular mixing zone monotonically changes from a linear law at a velocity ratio of 0.3 to a parabolic law at a velocity ratio of 1. Mixing to molecular homogeneity takes 2—4 times longer than turbulent mixing. Orig. art. has: 16 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 24Feb65/ ORIG REF: 004/ OTH REF: 002
ATD PRESS: 5076

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

ZAMYATINA, N.A. (Moskva); PRUDNIKOV, A.G. (Moskva)

Speed of molecular mixing in the start sector of a turbulent jet. Izv. AN SSSR.Energ. i transp. no.3:137-143 My-Je '65. (MIRA 18:12)

1. Submitted February 9, 1965.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDNIKOV, A.G. (Moskva)

Statistical distribution of temperature nonuniformity scales in the macrozone of turbulent combustion. Izv.AN SSSR.Otd.tekh.nauk.-Mekh.i mashinostr. no.3:29-32 My-Je '63. (MIRA 16:8)
(Combustion)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 55011-65 EWT(1)/EWP(m) Pd-1 BW

ACCESSION NR: AP5016345 UR/0281/65/000/003/0137/0143
533.17:536.46

AUTHOR: Zamyatina, N. A. (Moscow); Prudnikov, A. G. (Moscow) 12 8

TITLE: The rate of molecular mixing in the initial section of a turbulent jet

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 3, 1965, 137-143

TOPIC TAGS: jet mixing, mixing rate, turbulent mixing, molecular mixing, airstream, combustion product jet, turbulent diffusion, molecular diffusion

ABSTRACT: Results are presented of theoretical and experimental studies of the effect of turbulence on the rate of molecular mixing in the initial section of a jet of hot combustion products injected into a concurrent cold airstream. A physical model which accounts for the turbulent diffusion and accelerated molecular diffusion was used. The experimental unit consists of a variable diameter (100 and 200 mm in diameter) air pipe equipped with a variable diameter (26, 30, and 60 mm) tube burner. The mixing experiments were carried out at an airstream temperature of 20—80C and a velocity of 0—30 m/sec and a jet temperature of 1500—1590K and velocity of 5—15 m/sec. To follow the mixing process photographically, the jet was colored either by passing the air-propane mixture through a sodium chloride solution or by injecting an alcoholic Na solution into the combustible mixture prior to combustion.

Card 1/2

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ACCESSION NR: AP5016345

Photometry of the pictures and mathematical treatment of the results showed that the degree of molecular mixing in the resulting jet-airstream flow to form a uniform molecular mixture may be expressed by the σ_{mt}/σ ratio, where σ_{mt} is a characteristic width of the molecular mixing zone and σ is a general characteristic boundary layer of the jet. With developed turbulent mixing at $Re = 10^5—10^7$, for the initial section of the jet σ_{mt}/σ depends on the jet diameter and is only slightly dependent on the jet-airstream velocity ratio. Under the same experimental conditions, the luminosity of the jet practically ceases when $\sigma_{mt} = 0.4a_t$, where a_t is an average statistical radius of the jet. Orig. art. has: 7 figures and 19 formulas. [PS]

ASSOCIATION: none

SUBMITTED: 09Feb65 ENCL: 00 SUB CODE: MEPR

NO REF SOV: 004 OTHER: 001 ATD PRESS: 4027

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

PRUDNIKOV, G.N., deputat Verkhovnogo Soveta RSFSR; MAKITINA, Ye.D., red.

[Use feed resources wisely] Razumno ispol'zovat' kormovye resursy. Moskva, Kolos, 1964. 82 p. (MIRA 17:8)

1. Predsedatel' kolkhoza "Pervoye maya" Kaluzhskoy oblasti (for Prudnikov).

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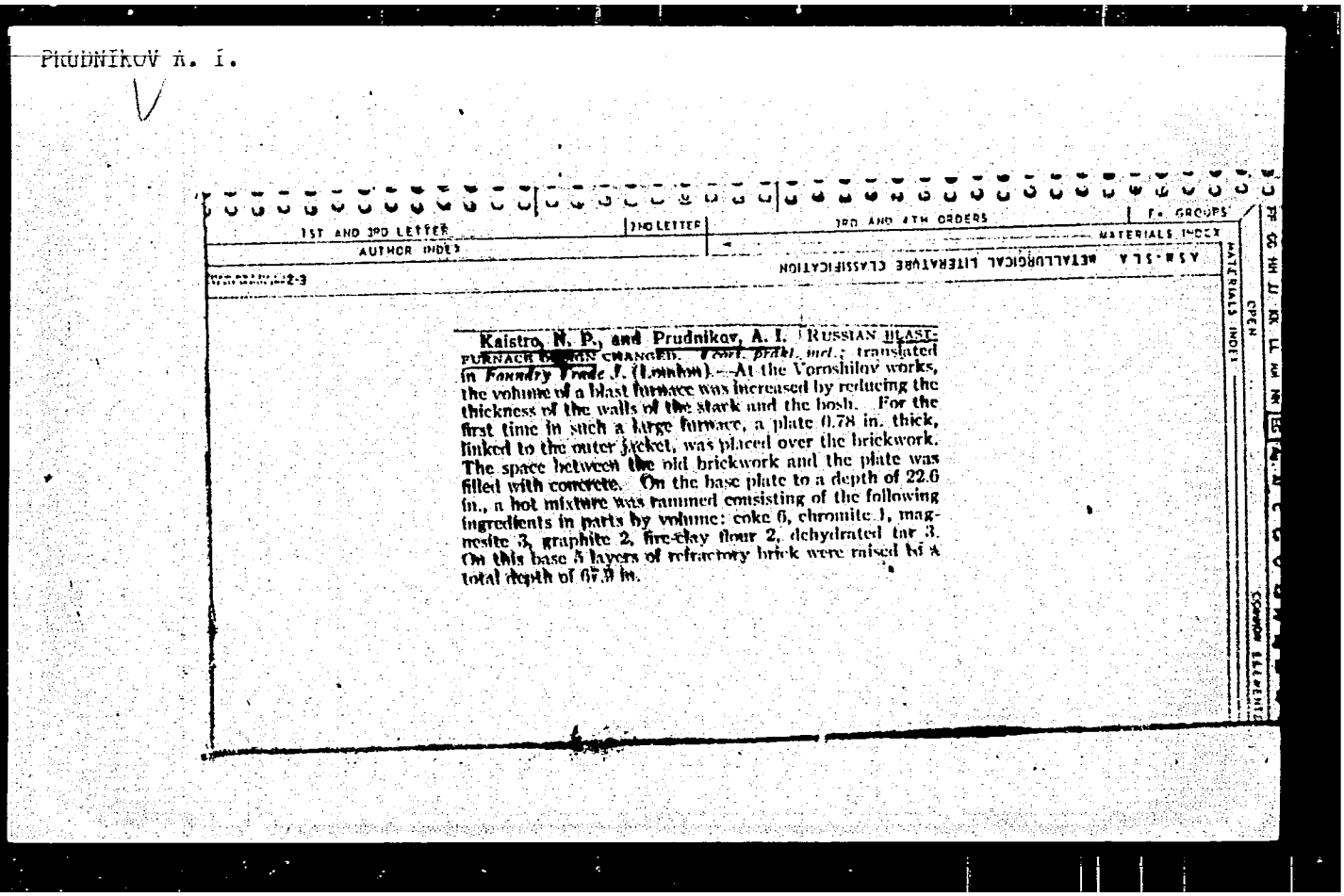
PRUDNIKOV A. I.



1ST AND 3RD LETTER | 2ND LETTER | 3RD AND 4TH ORDERS | F. GROUPS
AUTHOR INDEX | MATERIALS INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
MATERIALS INDEX
COPPER ELEMENT

Kaistro, N. P., and Prudnikov, A. I. RUSSIAN BLAST-FURNACE DESIGN CHANGES. *Vest. stali, mel.*; translated in *Foundry Trade J.* (London).—At the Voroshilov works, the volume of a blast furnace was increased by reducing the thickness of the walls of the stack and the bosh. For the first time in such a large furnace, a plate 0.78 in. thick, linked to the outer jacket, was placed over the brickwork. The space between the old brickwork and the plate was filled with concrete. On the base plate to a depth of 22.6 in., a hot mixture was rammed consisting of the following ingredients in parts by volume: coke 6, chromite 1, magnesite 3, graphite 2, fire-clay flour 2, dehydrated tar 3. On this base 5 layers of refractory brick were raised to a total depth of 67.9 in.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

BRYUKHANOV, K.F.; PRUDNIKOV, A.I.

Device for straightening blades from diffusion apparatus. Sakh.prom. 27 no.8:37 Ag '53. (MLRA 6:8)

1. Zherdevskiy sakharnyy zavod. (Sugar machinery)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

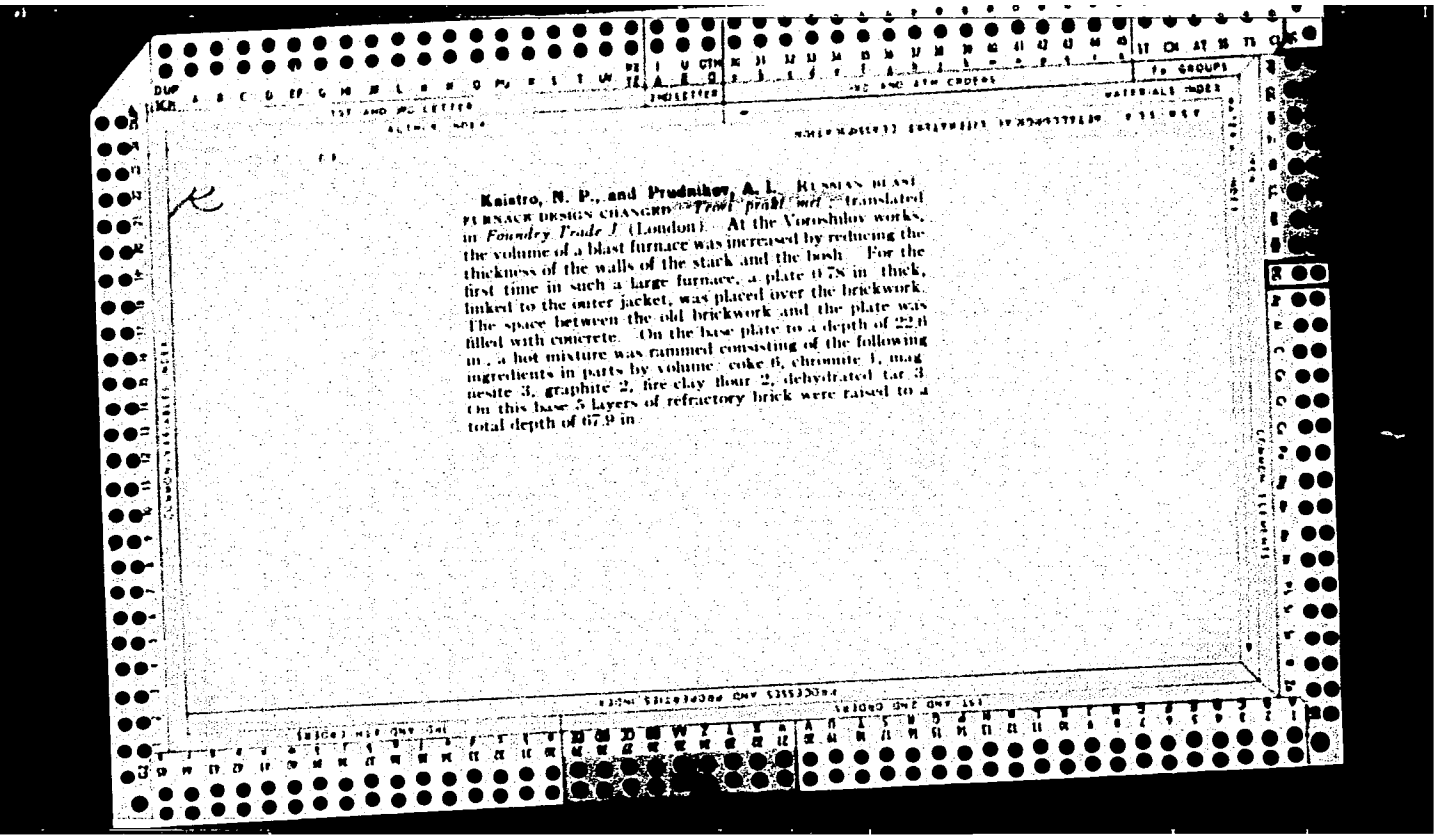
BRYUKHANOV, K.F.; PRUDNIKOV, A.I.

Reconditioning the cylinder head on an internal combustion motor. Sakh. prom. 27 no.8:36-37 Ag '53. (MLRA 6:8)

1. Zherdevskiy sakharnyy zavod. (Diesel motor)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8



Kaistro, N. P., and Prudnikov, A. L. RUSSIAN BLAST FURNACE DESIGN CHANGES. *Trans. publ. and* — translated in *Foundry Trade J.* (London). At the Voroshilov works, the volume of a blast furnace was increased by reducing the thickness of the walls of the stack and the bosh. For the first time in such a large furnace, a plate 0.78 in. thick, linked to the outer jacket, was placed over the brickwork. The space between the old brickwork and the plate was filled with concrete. On the base plate to a depth of 22.0 in., a hot mixture was rammed consisting of the following ingredients in parts by volume: coke 6, chromite 1, magnesite 3, graphite 2, fire clay flour 2, dehydrated tar 3. On this base 5 layers of refractory brick were raised to a total depth of 67.9 in.

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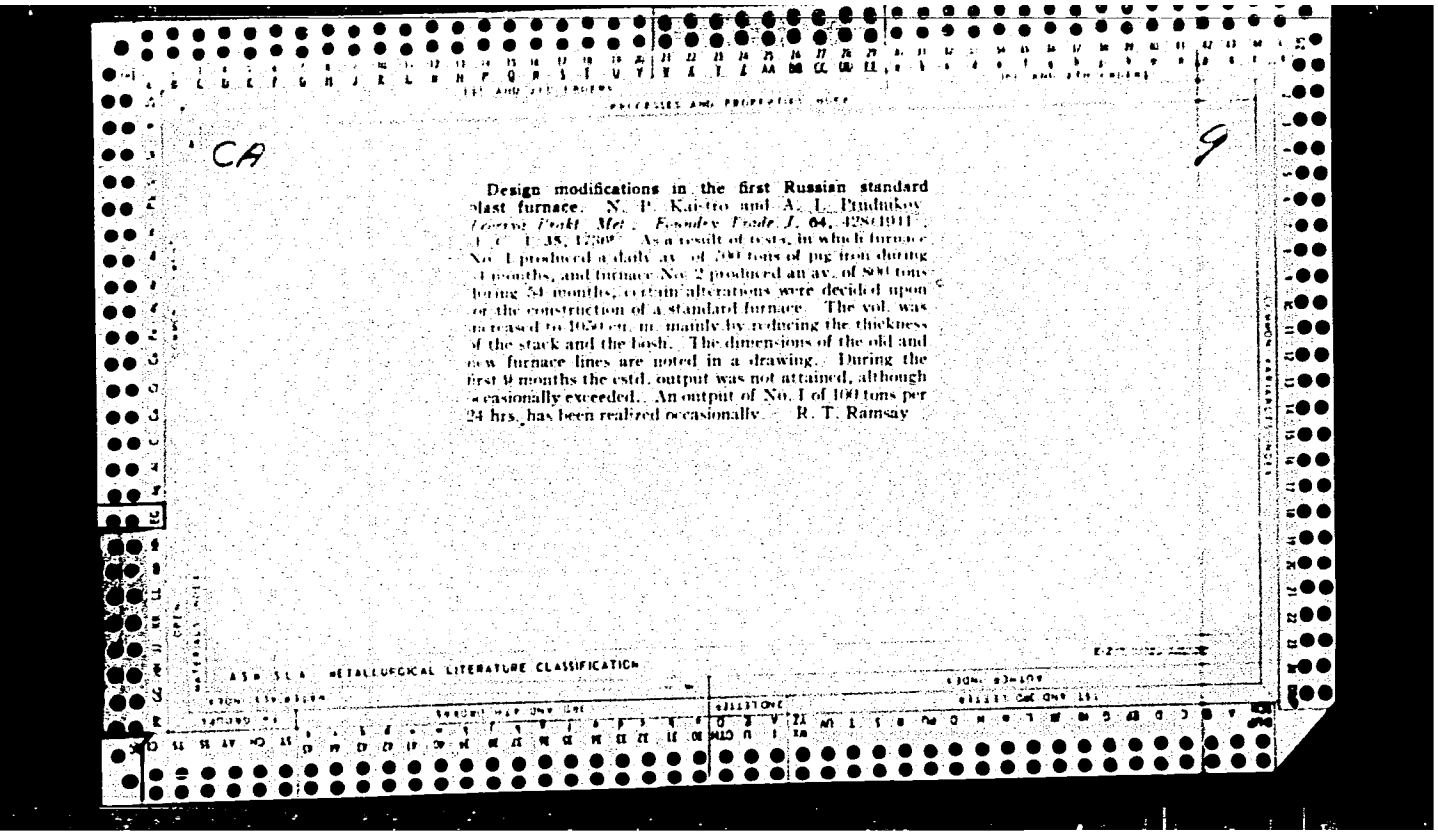
"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8



CA

9

Design modifications in the first Russian standard blast furnace. N. P. Kaĭ-tro and A. L. Ptudinkov *Izvestia Tekh. Met. Essadov Teode. I.* **64**, 428(1911); *C. A.* **5**, 1238. As a result of tests, in which furnace No. 1 produced a daily av. of 700 tons of pig iron during 4 months, and furnace No. 2 produced an av. of 800 tons during 54 months, certain alterations were decided upon for the construction of a standard furnace. The vol. was increased to 1050 cu. m. mainly by reducing the thickness of the stack and the bosh. The dimensions of the old and new furnace lines are noted in a drawing. During the first 9 months the estd. output was not attained, although occasionally exceeded. An output of No. 1 of 100 tons per 24 hrs. has been realized occasionally. R. T. Ramsay

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

L 00941-66 EWT(m)/EPA(w)-2/EWA(m)-2 IJP(c)

ACCESSION NR: AT5015936 UR/3092/65/000/003/0037/0045

AUTHOR: V'yalitsyn, V. A.; Nadybin, A. I.; Prudnikov, I. A.; Ryabtsov, A. V.; Smirnov, V. L.; Khokhlov, V. K.

TITLE: Investigation of the accelerating system of a 5-Mev linear accelerator

SOURCE: Moscow. Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury. Elektrofizicheskaya apparatura; sbornik statey, no. 3, 1965, 37-45

TOPIC TAGS: electron accelerator, 5 Mev linear accelerator

ABSTRACT: The results of testing an experimental model of the 5-Mev linear electron accelerator which is intended for beta and gamma therapy are reported. The accelerating system is made in the form of a 2338.3-mm long septate waveguide operating at $\pi/2$ mode. The initial 767-mm long section of the waveguide has variable dimensions so that the phase velocity and field-strength amplitude can be continuously varied to ensure a high capture coefficient. These measured

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ACCESSION NR: AT5015936 0

characteristics are presented: energy and accelerated-beam energy-spectrum width vs. frequency (maximum energy, around 2798.6 Mc); ratio of accelerated-particle current to injection current (capture) vs. frequency (80% corresponds to about 2800 Mc); energy, energy-spectrum width and capture vs. r-f power; same quantities vs. injection current; energy and energy-spectrum width vs. injection current; energy and energy-spectrum width vs. injection voltage. The energy spread of electrons at the spectrum half-height is ±5% or less; the average current of accelerated electrons, 70 μa. Orig. art. has: 10 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NO REF SOV: 002 OTHER: 000

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MALINOV, M.S., inzh.; PRUDNIKOV, I.P., inzh.

Design of a heat regulator in the hydraulic drive system of the cooling fans of a diesel locomotive. Energomashinostroenie 11 no.6:37-40 Je '65. (MIRA 18:7)

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PRUDNIKOV, A. P., Cand Phys-Math Sci -- (diss) "Analytical Study of the Processes of Heat and Mass Exchange." Minsk, 1957. 7 pp (Acad Sci Belorussian SSR, Department of Physicomathematical and Technical Sci), 100 copies (KL, 50-57, 118)

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PRUDNIKOV, A.P.

24-8-24/34

AUTHOR: Prudnikov, A.P. (Moscow).

TITLE: Solution of certain problems in the theory of molecular transport for bodies of simpler geometrical form. (Resheniye nekotorykh zadach teorii molekulyarnogo perenosa dlya tel prosteyshey geometricheskoy formy).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.8, pp.143-145 (U.S.S.R.)

ABSTRACT: Certain problems in the theory of molecular transport, which are connected with the solution of a system of differential equations of heat and mass transport, are of major practical and theoretical interest. The kinetics of drying, soil conduction etc. are of this type. Two non-stationary problems in the theory of molecular transport are solved in the present paper, corresponding to bodies of cylindrical and spherical shape respectively. Equations (1) and (2) are the differential equations for the temperature and the potential of mass transport as functions of distance (r) and time (t). The differential equations are solved using a Hankel transform (eq.4) in the case of the cylinder, and the transform

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Solution of certain problems in the theory of molecular transport for bodies of simpler geometrical form. (Cont.)

$$F\,f(r,t) = \int_0^R rf\,(r,t)\,\frac{\sin sr}{s}\,dr$$

in the case of the sphere. There are 2 Slavic references.

SUBMITTED: May 14, 1957.

ASSOCIATION: None given.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001343410016-8

20-5-5/54

AUTHOR: PRUDNIKOV, A.P.

TITLE: The Solution of a Mixed Problem for a System of two Differential Equations of Parabolic Type in an Integral Form (Resheniye integral'noy forme odnoy smeshannoy zadachi dlya sistemy dvukh differentsial'nykh uravneniy parabolicheskogo tipa)

PERIODICAL: Doklady Akad.Nauk SSSR 1957, Vol.115, Nr.5, pp.869-871 (USSR)

ABSTRACT: The author considers the system

$$\frac{\partial U}{\partial t} = a\left(\frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2}\right) + b\frac{\partial V}{\partial t}, \quad \frac{\partial V}{\partial t} = a'\left(\frac{\partial^2 V}{\partial x^2} + \frac{\partial^2 V}{\partial y^2}\right) + b'\left(\frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2}\right)$$

with the initial conditions $U(x,y0) = F_1(x,y)$; $V(x,y,0) = F_2(x,y)$

and the boundary conditions $U'_x\big|_{x=o} = U'_y\big|_{y=o} = V'_x\big|_{x=o} = V'_y\big|_{y=o} = 0$;

$$U'_x\big|_{x=c} = \psi_1(y,t), \quad U'_y\big|_{y=d} = X_1(x,t), \quad V'_x\big|_{x=c} = \psi_2(y,t), \quad V'_y\big|_{y=d} = X_2(x,t).$$

Here a,b,a',b' are constant and $(a+a'+bb')^2 \neq 4aa'$. By a double Fourier transformation

$$F\{\phi(x,y)\} = \iint_R \exp\left(-im\frac{\pi}{c}\xi - in\frac{\pi}{d}\eta\right)\phi(\xi,\eta)\,d\xi\,d\eta = \psi(m,n),$$

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The Solution of a Mixed Problem for a System of two Differential Equations of Parabolic Type in an Integral Form 20-5-5/54

where R : $-c \leq x \leq c$, $-d \leq y \leq d$, the author obtains a system of two ordinary differential equations:

$$\frac{du(m,n,t)}{dt} = -a\pi^2\left(\frac{m^2}{c^2} + \frac{n^2}{d^2}\right)u(m,n,t) + 2a\left[(-1)^m \int_{-d}^{d} \exp\left(-in\frac{\pi}{d}\eta\right)\psi_1(\eta,t)\,d\eta + (-1)^n \int_{-c}^{c} \exp\left(-im\frac{\pi}{c}\xi\right)\chi_1(\xi,t)\,d\xi\right] + b\cdot\frac{dv(m,n,t)}{dt} \quad \text{etc.}$$

Card 2/2 By application of the Laplace-Carson integral there results an algebraic system and then on the way back the sought functions U and V which can be expressed explicitly by double integrals of the ψ-functions.

ASSOCIATION: Computing Center of the Acad.Sci.USSR (Vychislitel'nyy tsentr AN SSSR)

PRESENTED : By A. A. Dorodnitskiy, Academician, March 15, 1957

SUBMITTED: March 11, 1957

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PRUDNIKOV, A.P

16(1) PHASE I BOOK EXPLOITATION SOV/2000

Ditkin, Vitaliy Arsen'yevich and Anatoliy Platonovich Prudnikov

Operatsionnoye ischisleniye po dvum peremennym i yego prilozheniya (Operational Calculus of Two Variables and Its Applications) Moscow, Fizmatgiz, 1958. 178 p. 8,000 copies printed.

Ed.: M.V. Yakovkin; Tech. Ed.: Ye.A. Yermakova.

PURPOSE: This book is intended for scientists, engineers, aspirants, and advanced undergraduate students in universities and vtuzes.

COVERAGE: The book discusses fundamentals of the theory of operational calculus of two variables based on two-dimensional Laplace transforms. In order to make this book of more practical value, the authors have included a very large number of operational formulas and have given more attention to calculation technique than to rigor of presentation. The authors have made wide use of existing literature in writing the book, especially the work by D. Voelker and G. Doetsch, Die Zweidimensionale Laplace-Transformation, and "Le Calcul Symbolique á Deux Variables et Ses Applications", by L. Poli and P. Delerue, Memorial des Sciences Mathematiques, fasc.

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127. No personalities are mentioned. There are 62 references: 7 Soviet, 14 English, 22 French, 6 German, 8 Italian, 2 Spanish, and 3 Rumanian.

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